| | |
|---|---|
| Engineer | Jerry Williams, P.E. |
| Email Address | jerry.williams@wv.gov |
| Company Name | Noble Energy, Inc. |
| Company ID | 051-000230 |
| Facility Name | Sand Hill 22 (SHL 22) |
| Permit Number | R13-3345 |
| County | Marshall |
| Newspaper | *Moundsville Daily Echo* ok to publish |
| Company Email and "Attention To:" | RJ Moses<br>rj.moses@nblenergy.com |
| Environmental Contact Email Address | Phil Schlagel<br>Phil.schlagel@nblenergy.com |
| Regional Office (if applicable) | NPRO |
| New or Modified Source? | new |
| Construction, Modification, or Relocation? | construction |
| Type of Facility | natural gas production facility |
| "Located" or "To Be Located"? | located |
| Place where I can find electronic versions of your notice, engineering evaluation, and draft permit | Q:\AIR_QUALITY\J_Willi\Permit Applications Under Review\Noble Energy, Inc\R13-3345 Sand Hill 22 |

publish Fri Dec 23 2016

30 days Mon Jan 23 2017

emails prepped

# INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name **Noble Energy, Inc.**

Permitting Action Number R13-3345 Total Days 67 DAQ Days 28

**Permitting Action:**

- ○ Permit Determination
- ○ General Permit
- ○ Administrative Update
- ○ Temporary
- ○ Relocation
- ✓ Construction
- ○ Modification
- ○ PSD (Rule 14)
- ○ NNSR (Rule 19)

**Documents Attached:**

- ✓ Engineering Evaluation/Memo
- ✓ Draft Permit
- ✓ Notice
- ○ Denial
- ○ Final Permit/General Permit Registration
- ○ Completed Database Sheet
- ○ Withdrawal
- ○ Letter
- ○ Other *(specify)*

| Date | From | To | Action Requested |
|---|---|---|---|
| 12/20/2016 | Jerry | Bev | Please review and approve for notice |
| 12/20 | Bev | Jerry | Cvr to Notice |
| 12/20 | Jerry | Sandie | Approved for Notice |
| | | | |
| | | | |
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NOTE: Retain a copy of this manifest for your records when transmitting your document(s).

| | |
|---|---|
| Engineer | Jerry Williams, P.E. |
| Email Address | jerry.williams@wv.gov |
| Company Name | Noble Energy, Inc. |
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| Company Email and "Attention To:" | RJ Moses<br>rj.moses@nblenergy.com |
| Environmental Contact Email Address | Phil Schlagel<br>Phil.schlagel@nblenergy.com |
| Regional Office (if applicable) | NPRO |
| New or Modified Source? | new |
| Construction, Modification, or Relocation? | construction |
| Type of Facility | natural gas production facility |
| "Located" or "To Be Located"? | located |
| Place where I can find electronic versions of your notice, engineering evaluation, and draft permit | Q:\AIR_QUALITY\J_Willi\Permit Applications Under Review\Noble Energy, Inc\R13-3345 Sand Hill 22 |

# AIR QUALITY PERMIT NOTICE

## Notice of Intent to Approve

On October 14, 2016, Noble Energy, Inc. applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to construct a natural gas production facility located off of Standiford Hill Road, Dallas, Marshall County, WV at latitude 40.010882 and longitude -80.576596. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-3345.

The following potential emissions will be authorized by this permit action: Oxides of Nitrogen, 10.38 tons per year (TPY); Carbon Monoxide, 28.27 TPY; Volatile Organic Compounds, 27.09 TPY; Particulate Matter less than 10 microns, 19.14 TPY; Sulfur Dioxide, 0.08 TPY; Total Hazardous Air Pollutants, 3.36 TPY; Carbon Dioxide Equivalents, 17,192 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on (Day of Week, Month, Day, Year). A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Jerry Williams, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1223
FAX: 304/926-0478

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx

west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

# ENGINEERING EVALUATION / FACT SHEET

## BACKGROUND INFORMATION

| | |
|---|---|
| Application No.: | R13-3345 |
| Plant ID No.: | 051-00230 |
| Applicant: | Noble Energy Inc. (Noble) |
| Facility Name: | Sand Hill 22 (SHL 22) |
| Location: | Dallas, Marshall County |
| NAICS Code: | 211111 (Natural Gas Production) |
| Application Type: | Construction |
| Received Date: | October 14, 2016 |
| Engineer Assigned: | Jerry Williams, P.E. |
| Fee Amount: | $2,000.00 |
| Date Received: | October 26, 2016 |
| Complete Date: | November 21, 2016 |
| Due Date: | February 19, 2017 |
| Applicant Ad Date | October 13, 2016 |
| Newspaper: | *Moundsville Daily Echo* |
| UTM's: | Easting: 536.136 km Northing: 4,429.051 km Zone: 17 |
| Description: | Oil and natural gas production facility. |

## DESCRIPTION OF PROCESS

The following process description was taken from the permit application and supplemental documents:

The SHL 22 site is an oil and gas natural gas production facility. Condensate, gas, sand and water come from eight (8) natural gas wells through eight (8) sand separators. Sand is routed to the unloading vessel which will also be used for well liquids unloading, controlled by a flare (6C-FL). Accumulated sand will be removed periodically for proper disposal. Liquids from the unloading vessel will be transferred to the produced water tanks by a diaphragm pump (10S-Pump) controlled by the flare (6C-FL). From the sand separators, the stream is routed to eight (8) gas production units and heaters (3S-GPU1-8) where fluid separation occurs, controlled by

16 pneumatic level control valves (11S-LC1-16). Flow to the GPUs will be controlled by eight (8) pneumatic flow control valves (11S-FC1-8). Produced water from the separators flows into four (4) water tanks (1S-TK1-4) controlled by one (1) vapor combustor (4C-COMB). Condensate and gas is routed from the GPUs directly to sales through one (1) pneumatic back pressure control valve (11S-BP). Produced water will be trucked or pumped off location. Any loading emissions will be controlled by the vapor combustor (4C-COMB). If line power is not available, the facility power will be generated by an Acumentrics Remote Power System (8S-4C).

SITE INSPECTION

A site inspection was conducted on November 28, 2016 by Greigory Paetzold of the DAQ Enforcement Section. According to Mr. Paetzold, the location is appropriate and the facility was operating in compliance. The closest residence is approximately 1,000 feet away.

Latitude: 40.010882
Longitude: -80.576596

Directions to the facility are as follows:

*From I-70, take Dallas Pike Road (Exit 11). At bottom of ramp, make a right if traveling east or left if traveling west onto CR41 (Dallas Pike Road) and travel 4.9 miles to the town of Dallas. Make a right onto CR7 (Stone Church/Sand Hill Road) and travel 1.8 miles to CR7 (Wye Intersection). Make a left hand turn onto Sand Hill Road and travel 1.1 miles to CR9 (Standiford Hill Road). Make a right and travel 0.1 mile to lease road on left.*


ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this application consist of the emissions from a vapor combustor controlling four (4) produced water tanks and produced water truck loadout, eight (8) GPU burners, one (1) flare controlling a diaphragm pump, one (1) fuel cell, and pneumatic control valves. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

| Emission Point ID# | Process Equipment | Calculation Methodology |
|---|---|---|
| 4E-COMB | 11.7 MMBTU/hr Vapor Combustor | EPA AP-42 Emission Factors, FESCO Flash |
| 2E-TL | 85,848,000 gal/yr Uncaptured Truck Loading | EPA AP-42 Emission Factors |
| 3E-GPU1-8 | 8 -2.0 MMBTU/hr GPUS | EPA AP-42 Emission Factors |
| 5E-PILOT | Vapor Combustor Pilot | EPA AP-42 Emission Factors |
| 6E-FL | 74.73 MMBTU/hr Flare | EPA AP-42 Emission Factors, HYSYS |
| 7E-PILOT | Flare Pilot | EPA AP-42 Emission Factors |
| 8E-FC | Fuel Cell | EPA AP-42 Emission Factors |
| 11E-FC1-8 | Pneumatic Flow Control Valves | HYSYS |
| 11E-BP | Pneumatic Back Pressure Control Valve | HYSYS |
| 11E-LC1-16 | Pneumatic Level Control Valves | HYSYS |

The following table indicates the control device efficiencies that are required for this facility:

| Emission Unit | Pollutant | Control Device | Control Efficiency |
|---|---|---|---|
| 1S-TK1-4(4 – 400 bbl Produced Water Tanks) | Volatile Organic Compounds | Vapor Combustor (4E-COMB) | 98 % |
| | Hazardous Air Pollutants | | 98 % |
| 2S-TL1 (Produced Water Truck Loadout) | Volatile Organic Compounds | Vapor Combustor (4E-COMB) w/ 70% Capture | 69 % |
| | Hazardous Air Pollutants | | 69 % |

The total facility PTE (including fugitives) for the SHL 22 is shown in the following table:

| Pollutant | Maximum Annual PTE (tons/year) |
|---|---|
| Nitrogen Oxides | 10.38 |
| Carbon Monoxide | 28.27 |
| Volatile Organic Compounds | 27.09 |
| Particulate Matter-10 | 19.14 |
| Sulfur Dioxide | 0.08 |
| Total HAPs | 3.36 |
| Carbon Dioxide Equivalent | 17,192 |

# Noble Energy, Inc. – SHL 22 (R13-3345)

| Emission | Source | $NO_x$ | | CO | | VOC | | PM-10 | | $SO_2$ | | Total HAPs | | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Point ID# | | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | ton/year |
| 4E-COMB | Vapor Combustor (Tanks/Loading) | 0.80 | 3.49 | 4.33 | 18.97 | 0.28 | 1.24 | 0.09 | 0.38 | 0.01 | 0.03 | 0.04 | 0.18 | 6051 |
| 2E-TL1 | Uncaptured Truck Loading | 0 | 0 | 0 | 0 | 0.53 | 2.30 | 0 | 0 | 0 | 0 | 0.12 | 0.48 | 2 |
| 3E-GPU1-8 | 8 GPU Burners | 1.33 | 5.84 | 1.12 | 4.91 | 0.07 | 0.32 | 0.10 | 0.44 | 0.01 | 0.04 | 0.03 | 0.11 | 7011 |
| 5E-PILOT | Vapor Combustor Pilot | 0.001 | 0.01 | 0.001 | 0.005 | 0.0001 | 0.0003 | 0.0001 | 0.0004 | 0.00001 | 0.00003 | 0.00002 | 0.0001 | 7 |
| 6E-FL | Flare (Diaphragm Pump, Pilot) | 5.20 | 1.04 | 23.64 | 4.39 | 18.34 | 3.35 | 0.56 | 0.11 | 0.04 | 0.01 | 1.35 | 0.25 | 2206 |
| 8E-FC | Fuel Cell | 0.001 | 0.003 | 0.0005 | 0.002 | 0.0001 | 0.0003 | 0.00004 | 0.0002 | 0.00001 | 0.00003 | 0 | 0 | 3 |
| 11E-FC1-8 | Pneumatic Flow Control Valves | 0 | 0 | 0 | 0 | 2.46 | 10.76 | 0 | 0 | 0 | 0 | 0.20 | 0.86 | 1451 |
| 11E-BP | Pneumatic Back Pressure Control Valv | 0 | 0 | 0 | 0 | 0.31 | 1.34 | 0 | 0 | 0 | 0 | 0.02 | 0.11 | 181 |
| 11E-LC1-16 | Pneumatic Level Control Valves | 0 | 0 | 0 | 0 | 0.01 | 0.06 | 0 | 0 | 0 | 0 | 0.20 | 0.86 | 8 |
| | | | | | | | | | | | | | | |
| **Total Point Source** | | **7.34** | **10.38** | **29.09** | **28.27** | **22.00** | **19.37** | **0.75** | **0.93** | **0.06** | **0.08** | **1.96** | **2.85** | **16921** |
| | | | | | | | | | | | | | | |
| Fugitive | Fugitive Venting | 0 | 0 | 0 | 0 | 1.75 | 7.72 | 0 | 0 | 0 | 0 | NA | 0.51 | 271 |
| HR | Haulroad Emissions | 0 | 0 | 0 | 0 | 0 | 0 | 2.37 | 18.21 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | |
| **Total Fugitive** | | **0.00** | **0.00** | **0.00** | **0.00** | **1.75** | **7.72** | **2.37** | **18.21** | **0.00** | **0.00** | **0.00** | **0.51** | **271** |
| | | | | | | | | | | | | | | |
| **Total Sitewide** | | **7.34** | **10.38** | **29.09** | **28.27** | **23.75** | **27.09** | **3.12** | **19.14** | **0.06** | **0.08** | **1.96** | **3.36** | **17192** |

REGULATORY APPLICABILITY

The following rules apply to this modification:

**45CSR2** (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the GPU burners (3S-GPU1-8) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

Noble would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

**45CSR6** (To Prevent and Control Air Pollution from the Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

Noble has one (1) vapor combustor and one (1) flare at the facility. These units are subject to section 4, emission standards for incinerators. These units have negligible hourly particulate matter emissions. Therefore, these units should demonstrate compliance with this section. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by these units and the hours of operation. The facility will also monitor the flame of these units and record any malfunctions that may cause no flame to be present during operation.

**45CSR10** (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the GPU burners (3S-GPU1-8) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

**45CSR13** (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

A 45CSR13 construction permit applies to this source due to the fact that Noble exceeds 6 lb/hr and 10 tpy and is subject to a substantive requirement of an emission control rule (40CFR60 OOOOa).

Noble paid the appropriate application fee and published the required legal advertisement for a modification permit application.

**45CSR16** (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subpart OOOOa. These requirements are discussed under those rules below.

**45CSR22** (Air Quality Management Fee Program)

Noble is not subject to 45CSR30. The SHL 22 site is subject to 40CFR60 Subpart OOOOa, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Noble is required to pay the appropriate annual fees and keep their Certificate to Operate current.

**40CFR60, Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after September 18, 2015)**

EPA published its New Source Performance Standards (NSPS) for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO2) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

The affected sources which commence construction, modification or reconstruction after September 18, 2015 are subject to the applicable provisions of this Subpart as described below:

For each well site, the registrant must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with fugitive emissions monitoring as required in §60.5397a and the alternative means of emission limitations in §60.5398a.

a. Each well affected facility.

*The SHL 22 site consist of eight (8) natural gas wells. The wells were constructed after the September 18, 2015 applicability date. Therefore, the gas wells located at the facility are subject to the requirements of this subpart.*

b. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

*There are no centrifugal compressors at the SHL 22 site. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOOa would not apply.*

c. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

*There are no reciprocating compressors at the SHL 22 site. Therefore, all requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOOa would not apply.*

d. Each pneumatic controller affected facility not located at a natural gas processing plant, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

*All pneumatic controllers at the facility will be less than 6 scfh.*

e. Each storage vessel affected facility, which is a single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section. The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput for a 30-day period of production prior to the applicable emission determination deadline specified in this subsection. The determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a federal or state authority.

A storage vessel with a capacity greater than 100,000 gallons used to recycle water that has been passed through two stage separation is not a storage vessel affected facility.

*The storage vessels located at the SHL 22 site are controlled by a vapor combustor which will reduce the potential to emit to less than 6 tpy of VOC. Therefore, Noble is not required by this section to further reduce VOC emissions by 95%.*

f. The group of all equipment, except compressors, within a process unit is an affected facility.

*The SHL 22 site is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.*

g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.

*There are no sweetening units at the SHL 22 site. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOOa would not apply.*

h. Each pneumatic pump affected facility at well sites, which is a single natural gas-driven diaphragm pump. A single natural gas-driven diaphragm pump that is in operation less than 90 days per calendar year is not an affected facility provided the owner/operator keeps records of the days of operation each calendar year and submits records appropriately.

*The pneumatic diaphragm pump at the SHL 22 site is subject to this subpart.*

i. The collection of fugitive emission components at a well site is an affected facility. The rule requires leak monitoring twice a year at gas and oil well sites. In addition to optical gas imaging (OGI), the rule allows owners/operators to use Method 21 with a repair threshold of 500 ppm as an alternative for finding and repairing leaks. Method 21 is an EPA method for determining VOC emissions from process equipment. The method utilizes a portable VOC monitoring instrument.

*Noble is subject to these LDAR requirements.*

The following rules do not apply to the facility:

**45CSR14** (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

**45CSR19** (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

On September 30, 2013, EPA approved a redesignation request and State Implementation Plan (SIP) revision submitted by the State of West Virginia. The West Virginia Department of Environmental Protection (WVDEP) requested that the West Virginia portion of the Wheeling, WV–OH fine particulate matter (PM 2.5) nonattainment area (''Wheeling Area'' or ''Area'') be redesignated as attainment for the 1997 annual PM 2.5 national ambient air quality standard (NAAQS).

The SHL 22 site is located in Marshall County, which is located in this metropolitan statistical area and is an attainment county for all pollutants. Therefore, this site is not subject to 45CSR19.

As shown in the following table, Noble is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

| **Pollutant** | **PSD (45CSR14) Threshold (tpy)** | **NANSR (45CSR19) Threshold (tpy)** | **SHL 22 PTE (tpy)** | **45CSR14 or 45CSR19 Review Required?** |
|---|---|---|---|---|
| Carbon Monoxide | 250 | NA | 28.27 | No |
| Nitrogen Oxides | 250 | NA | 10.38 | No |
| Sulfur Dioxide | 250 | NA | 0.08 | No |
| Particulate Matter 2.5 | 250 | NA | 0.93 | No |
| Ozone (VOC) | 250 | NA | 19.37 | No |

**45CSR30** (Requirements for Operating Permits)

Noble is not subject to 45CSR30. The SHL 22 site is subject to 40CFR60 Subpart OOOOa, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

**40CFR60 Subpart Kb** (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The largest tanks that Noble has installed are 63.59 cubic meters each. Therefore, Noble would not be subject to this rule.

**40CFR60 Subpart KKK** (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The SHL 22 site is not a natural gas processing facility, therefore, Noble is not subject to this rule.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The following HAPs are common to this industry. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

| HAPs | Type | Known/Suspected Carcinogen | Classification |
|---|---|---|---|
| Formaldehyde | VOC | Yes | Category B1 - Probable Human Carcinogen |
| Benzene | VOC | Yes | Category A - Known Human Carcinogen |
| Ethylbenzene | VOC | No | Inadequate Data |
| Toluene | VOC | No | Inadequate Data |
| Xylenes | VOC | No | Inadequate Data |

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at *www.epa.gov/iris*.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as shown in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

SOURCE AGGREGATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and will become effective on August 2, 2016. EPA defined the term "adjacent" and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The SHL 22 site will operate under SIC code 1311 (Natural Gas Production). There are other well pads operated by Noble that share the same two-digit major SIC code of 13 for natural gas production.

"Contiguous or Adjacent" determinations are made on a case by case basis. There are no other equipment and activities in the oil and gas sector that are under common control of Noble that are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The SHL 22 site is not located on contiguous or adjacent properties with other facilities under common control, therefore, the emissions from this facility shall not be aggregated with other facilities for the purposes of making Title V and PSD determinations.

MONITORING OF OPERATIONS

Noble will be required to perform the following monitoring:

- Monitor and record quantity of natural gas consumed for all combustion sources.
- Monitor all applicable requirements of 40CFR60 Subpart OOOOa, and 40CFR63 Subpart ZZZZ.
- Monitor the presence of the vapor combustor and flare pilot flames with a thermocouple or equivalent.

Noble will be required to perform the following recordkeeping:

- Maintain records of the hours of operation for the engine.
- Maintain records of the amount of natural gas consumed and hours of operation for the vapor combustor and flare
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.

- Maintain records of all applicable requirements of 40CFR60 Subpart OOOOa and 40CFR63 Subpart ZZZZ.
- Maintain records of the vapor combustor and flare design evaluation.
- The records shall be maintained on site or in a readily available off-site location maintained by Noble for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Noble meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the SHL 22 site should be granted a 45CSR13 construction permit for their facility.

Jerry Williams, P.E.
Engineer

12-20-2016
Date

*West Virginia Department of Environmental Protection*

*Earl Ray Tomblin*
*Governor*

***Division of Air Quality***

*Randy C. Huffman*
*Cabinet Secretary*

# Permit to Construct



**R13- 3345**

*This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.*

*Issued to:*

**Noble Energy, Inc.**
**Sand Hill 22 (SHL 22)**
**051-00230**

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*William F. Durham*
*Director*

*Issued: Draft*

| | |
|---|---|
| Facility Location: | Dallas, Marshall County, West Virginia |
| Mailing Address: | 1000 Noble Energy Drive, Canonsburg, PA 15317 |
| Facility Description: | Natural Gas Production Facility |
| NAICS Codes: | 211111 |
| UTM Coordinates: | 536.136 km Easting • 4,429.051 km Northing • Zone 17 |
| Permit Type: | Construction |
| Description of Change: | Natural gas production facility. |

*Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.*

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*The source is not subject to 45CSR30.*

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## Table of Contents

## 1.0. Emission Units

| Emission Unit ID | Emission Point ID | Emission Unit Description | Year Installed | Design Capacity | Control Device |
|---|---|---|---|---|---|
| 1S-TK1-4 | 4E-COMB | Four (4) Produced Water Storage Tanks | 2016 | 400 bbl (each) | 4C-COMB |
| 2S-TL1 | 2E-TL1, 4C-COMB | Produced Water Truck Loadout | 2016 | 2,044,000 bbl/yr | 4C-COMB |
| 3S-GPU1-8 | 3S-GPU1-8 | Eight (8) GPU Burners | 2016 | 2.0 MMBTU/hr (each) | None |
| 4S-COMB | 4E-COMB | Vapor Combustor | 2016 | 11.7 MMBTU/hr | NA |
| 5S-PILOT | 5E-PILOT | Vapor Combustor Pilot | 2016 | 0.02 MMBTU/hr | NA |
| 6S-FL | 6E-FL | Flare | 2016 | 74.73 MMBTU/hr | NA |
| 7S-PILOT | 7E-PILOT | Flare Pilot | 2016 | 0.26 MMBTU/hr | NA |
| 8S-FC | 8E-FC | Propane Fuel Cell | 2016 | 1.44 gal/day | None |
| 10S-Pump | 6E-FL | Diaphragm Pump | 2016 | 20 scf/min | 6C-FL |
| 11S-FC1-8 | 11E-FC1-8 | Pneumatic Flow Control Valves | 2016 | 6 scfh | None |
| 11S-BP | 11E-BP | Pneumatic Back Pressure Control Valve | 2016 | 6 scfh | None |
| 11S-LC1-16 | 11E-LC1-16 | Pneumatic Level Control Valves | 2016 | 0.02 scf/hr | None |

### 1.1. Control Devices

| Emission Unit | Pollutant | Control Device | Control Efficiency |
|---|---|---|---|
| 1S-TK1-4(4 – 400 bbl Produced Water Tanks) | Volatile Organic Compounds | Vapor Combustor (4E-COMB) | 98 % |
| | Hazardous Air Pollutants | | 98 % |
| 2S-TL1 (Produced Water Truck Loadout) | Volatile Organic Compounds | Vapor Combustor (4E-COMB) w/ 70% Capture | 69 % |
| | Hazardous Air Pollutants | | 69 % |

## 2.0. General Conditions

### 2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

### 2.2. Acronyms

| | | | |
|---|---|---|---|
| **CAAA** | Clean Air Act Amendments | **NOx** | Nitrogen Oxides |
| **CBI** | Confidential Business Information | **NSPS** | New Source Performance Standards |
| **CEM** | Continuous Emission Monitor | **PM** | Particulate Matter |
| **CES** | Certified Emission Statement | **$PM_{2.5}$** | Particulate Matter less than 2.5 μm in diameter |
| **C.F.R. *or* CFR** | Code of Federal Regulations | **$PM_{10}$** | Particulate Matter less than 10μm in diameter |
| **CO** | Carbon Monoxide | **Ppb** | Pounds per Batch |
| **C.S.R. *or* CSR** | Codes of State Rules | **Pph** | Pounds per Hour |
| **DAQ** | Division of Air Quality | **Ppm** | Parts per Million |
| **DEP** | Department of Environmental Protection | **Ppmv or ppmv** | Parts per Million by Volume |
| **dscm** | Dry Standard Cubic Meter | **PSD** | Prevention of Significant Deterioration |
| **FOIA** | Freedom of Information Act | **Psi** | Pounds per Square Inch |
| **HAP** | Hazardous Air Pollutant | **SIC** | Standard Industrial Classification |
| **HON** | Hazardous Organic NESHAP | **SIP** | State Implementation Plan |
| **HP** | Horsepower | **$SO_2$** | Sulfur Dioxide |
| **lbs/hr** | Pounds per Hour | **TAP** | Toxic Air Pollutant |
| **LDAR** | Leak Detection and Repair | **TPY** | Tons per Year |
| **M** | Thousand | **TRS** | Total Reduced Sulfur |
| **MACT** | Maximum Achievable Control Technology | **TSP** | Total Suspended Particulate |
| **MDHI** | Maximum Design Heat Input | **USEPA** | United States Environmental Protection Agency |
| **MM** | Million | **UTM** | Universal Transverse Mercator |
| **MMBtu/hr *or* mmbtu/hr** | Million British Thermal Units per Hour | **VEE** | Visual Emissions Evaluation |
| **MMCF/hr *or* mmcf/hr** | Million Cubic Feet per Hour | **VOC** | Volatile Organic Compounds |
| **NA** | Not Applicable | **VOL** | Volatile Organic Liquids |
| **NAAQS** | National Ambient Air Quality Standards | | |
| **NESHAPS** | National Emissions Standards for Hazardous Air Pollutants | | |

## 2.3. Authority

This permit is issued in accordance with West Virginia air pollution control law W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*;

## 2.4. Term and Renewal

2.4.1. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

## 2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3345 and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
**[45CSR§§13-5.11 and -10.3.]**

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

## 2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

## 2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

## 2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
**[45CSR§13-4.]**

## 2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
**[45CSR§13-5.4.]**

## 2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
**[45CSR§13-5.1]**

## 2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

## 2.12. Emergency

2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by

improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.

2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;

b. The permitted facility was at the time being properly operated;

c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

## 2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

## 2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

## 2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

## 2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

## 2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1.]**

## 2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

## 2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

# 3.0. Facility-Wide Requirements

## 3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
**[45CSR§6-3.1.]**

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
**[45CSR§6-3.2.]**

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
**[40CFR§61.145(b) and 45CSR§34]**

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
**[45CSR§4-3.1]** ***[State Enforceable Only]***

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
**[45CSR§13-10.5.]**

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
**[45CSR§11-5.2.]**

## 3.2. Monitoring Requirements

*[Reserved]*

## 3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

    1. The permit or rule evaluated, with the citation number and language;
    2. The result of the test for each permit or rule condition; and,
    3. A statement of compliance or noncompliance with each permit or rule condition.

**[WV Code § 22-5-4(a)(14-15) and 45CSR13]**

## 3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
**[45CSR§4. *State Enforceable Only.*]**

## 3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

**If to the DAQ:**
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345
-or-
DEPAirQualityReports@wv.gov (preferred)

**If to the US EPA:**
Associate Director
Office of Air Enforcement and Compliance Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

### 3.5.4. Operating Fee

3.5.4.1. In accordance with 45CSR22 – Air Quality Management Fee Program, the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a

Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

# 4.0. Source-Specific Requirements

## 4.1. Limitations and Standards

4.1.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;
b. The date(s) analyses were performed;
c. The company or entity that performed the analyses;
d. The analytical techniques or methods used;
e. The results of the analyses; and
f. The operating conditions existing at the time of sampling or measurement.

4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** HAP emissions from the facility shall be less than 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs. Compliance with this Section shall ensure that the facility is a minor HAP source.

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
**[45CSR§13-5.11.]**

4.1.4. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event.
c. The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

## 5.0. Source-Specific Requirements [Gas and Oil Well Affected Facility (NSPS, Subpart OOOOa]

### 5.1. Limitations and Standards

5.1.1. The permittee of each gas well affected facility which commenced construction, modification or reconstruction after September 18, 2015 shall comply with the applicable requirements specified in 40 CFR Part 60, Subpart OOOOa.

5.1.2. *Completion Combustion Devices/Temporary Flares/Incinerators/Vapor Combustors/Enclosed Combustors.* These devices are subject to the applicable requirements specified in 45CSR6.

## 6.0. Source-Specific Requirements [Storage Vessels (1S-TK1-4)]

### 6.1. Limitations and Standards

6.1.1. *Emissions determination.* The permittee shall determine the VOC emissions for each storage vessel (as defined in § 60.5430, 60.5430a) to determine affected facility status in accordance with the *emissions determination* required below:

a. All storage vessels that commenced construction, modification or reconstruction after September 18, 2015 must use the emissions determination in § 60.5365a.

6.1.2. *Control Devices.* The permittee shall install, operate, and maintain the vapor combustor (4C-COMB) for the purpose of controlling emissions from the storage vessels (1S-TK1-4). The permittee shall route all VOC and HAP emissions from the storage vessels (1S-TK1-4) to the vapor combustor (4C-COMB), prior to release to the atmosphere. The vapor recovery system shall be designed to achieve a minimum guaranteed control efficiency of 98% for volatile organic compound (VOC) and hazardous air pollutants (HAP) emissions.

6.1.3. The maximum annual throughput of product to each of the 400 bbl storage tanks (1S-TK1-4) shall not exceed a maximum annual throughput of 21,462,000 gal/yr.

### 6.2. Monitoring Requirements

6.2.1. *Flash emissions.* The permittee shall monitor and maintain quarterly records of the temperature and pressure upstream of any storage vessel containing condensate and/or produced water at the appropriate separation unit based on the calculation methodology or model being used by the permittee to calculate their VOC flash emissions.

6.2.2. The permittee shall monitor the throughput to the storage vessels (1S-TK1-4) on a monthly basis.

### 6.3. Recordkeeping Requirements

6.3.1. The permittee shall maintain a record of the aggregate throughput for the storage vessels (1S-TK1-4) on a monthly and rolling twelve (12) month total. Said records shall be maintained in accordance with permit condition 3.5.1.

6.3.2. To demonstrate compliance with permit condition 6.1.1, the permittee shall maintain records of the determination of the VOC emission rate per storage vessel (1S-TK1-4), including identification of the model or calculation methodology used to calculate the VOC emission rate.

## 7.0. Source-Specific Requirements [Vapor Combustor (4E-COMB) controlling Produced Water Storage Tanks (1S-TK1-4) and Produced Water Truck Loading (2S-TL1)]

### 7.1. Limitations and Standards

7.1.1. *Operation and Maintenance of Vapor Combustor (4E-COMB).* The permittee shall, to the extent practicable, install, maintain, and operate the vapor combustors and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary. **[45CSR§13-5.11.]**

7.1.2. *Vapor Combustor (4E-COMB).* The permittee shall comply with the requirements in this section for the vapor combustor (4E-COMB):

i. Vapors that are being controlled by the vapor combustor (4E-COMB) shall be routed to the vapor combustors at all times.

ii. The vapor combustor (4E-COMB) shall be operated with a flame present at all times, as determined by the methods specified in permit conditions 7.2.1 and 7.2.3.

iii. The vapor combustor (4E-COMB) shall be designed for and operated with no visible emissions as determined by the methods specified in permit condition 7.3.1 except for either (a) or (b):

a. periods not to exceed a total of one minute during any 15 minute period, determined on a monthly basis; or

b. periods not to exceed a total of two (2) minutes during any hour, determined on a quarterly basis if the enclosed combustion device installed was a model tested under § 60.5413(d) which meets the criteria in § 60.5413(d)(11).

iv. The vapor combustor (4E-COMB) shall be operated at all times when emissions are vented to them.

v. To ensure compliance with 7.1.2.3(iv) above, the permittee shall monitor in accordance with permit condition 7.2.3.

vi. The permittee shall operate and maintain the vapor combustor (4E-COMB) according to the manufacturer's specifications for operating and maintenance requirements to maintain a guaranteed control efficiency of 98% for volatile organic compounds and hazardous air pollutants.

vii. *Closed Vent System.* The permittee shall comply with the closed vent system requirements in section 7.1.4.

viii. The vapor combustor (4E-COMB) is subject to the applicable requirements specified in 45CSR6.

ix. The maximum design heat input (MDHI) for the vapor combustor shall not exceed a maximum design heat input of 11.7 MMBTU/hr.

7.1.3. *Cover Requirements.* The permittee shall comply with the cover requirements in this section if the potential emissions that were calculated to determine affected facility status did include recovered vapors from the storage vessels (1S-TK1-4).

1. The cover and all openings on the cover (e.g., access hatches, sampling ports, pressure relief valves and gauge wells) shall form a continuous impermeable barrier over the entire surface area of the liquid in the storage vessel.

2. Each cover opening shall be secured in a closed, sealed position (e.g., covered by a gasketed lid or cap) whenever material is in the unit on which the cover is installed except during those times when it is necessary to use an opening as follows:

   (i) To add material to, or remove material from the unit (this includes openings necessary to equalize or balance the internal pressure of the unit following changes in the level of the material in the unit);

   (ii) To inspect or sample the material in the unit;

   (iii) To inspect, maintain, repair, or replace equipment located inside the unit; or

   (iv) To vent liquids, gases, or fumes from the unit through a closed-vent system designed and operated in accordance with the requirements of this permit to a control device or to a process.

3. Each storage vessel thief hatch shall be weighted and properly seated. You must select gasket material for the hatch based on composition of the fluid in the storage vessel and weather conditions.
**[45CSR§13-5.11.]**

7.1.4. *Closed Vent Systems.* The permittee shall comply with the closed vent system requirements in this section if the potential emissions that were calculated to determine affected facility status did include recovered or controlled vapors from the storage vessels (1S-TK1-4).

1. You must design the closed vent system to route all gases, vapors, and fumes emitted from the material in the storage vessel to a control device that meets the requirements of permit condition 7.1.2.

2. You must design and operate a closed vent system with no detectable emissions, as determined following the leak detection and repair procedures in 40CFR60 Subpart OOOOa.

3. You must comply with either paragraph (A) or (B) of this section for each bypass device.

   A. You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere that sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be, diverted away from the control device or process to the atmosphere.

   B. You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.

   ii. Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph (i) of this section.

**[45CSR§13-5.11.]**

7.1.5. Maximum emissions from the 11.7 MMBTU/hr LEED vapor combustor (4E-COMB) shall not exceed the following limits:

| Pollutant | Maximum Hourly Emissions (lb/hr) | Maximum Annual Emissions (ton/year) |
|---|---|---|
| Nitrogen Oxides | 0.80 | 3.49 |
| Carbon Monoxide | 4.33 | 18.97 |
| Volatile Organic Compounds | 0.28 | 1.24 |

## 7.2. Monitoring Requirements

7.2.1. To demonstrate compliance with the pilot flame requirements of permit conditions 7.1.2.2 and 7.1.2.3, the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via a remote alarm to the nearest field office, when the pilot light is out.

7.2.2. To demonstrate compliance with the closed vent system requirements of permit condition 7.1.4, the permittee shall:

a. *Initial requirements.* The permittee shall follow the leak detection and repair procedures in 40CFR60 Subpart OOOOa. The initial inspection shall include the bypass inspection, conducted according to paragraph (b) of this section.

b. *Bypass inspection.* Visually inspect the bypass valve during the initial inspection for the presence of the car seal or lock-and-key type configuration to verify that the valve is maintained in the non-diverting position to ensure that the vent stream is not diverted through the bypass device. If an alternative method is used, conduct the inspection of the bypass as described in the operating procedures.

c. *Unsafe to inspect requirements.* You may designate any parts of the closed vent system as unsafe to inspect if the requirements in paragraphs (i) and (ii) of this section are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.

i. You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the requirements.

ii. You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.

**[45CSR§13-5.11.]**

7.2.3. To demonstrate compliance with the pilot flame requirements of permit condition 7.1.2.3, the permittee shall follow (i) and (ii).

i. The presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out.

ii. For any absence of pilot flame, or other indication of smoking or improper equipment operation, you must ensure the equipment is returned to proper operation as soon as practicable after the event occurs. At a minimum, you must: (1) Check the air vent for obstruction. If an obstruction is observed, you must clear the obstruction as soon as practicable. (2) Check for liquid reaching the combustor.

iii. The permittee is exempt from the pilot flame requirements of permit condition 7.2.3.i and 7.2.3.ii if the permittee installed an enclosed combustion device model that was tested under § 60.5413(d) which meets the criteria in § 60.5413(d)(11).

## 7.3. Testing Requirements

7.3.1. To demonstrate compliance with the visible emissions requirements of permit condition 7.1.2, the permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

i. The visible emission check shall determine the presence or absence of visible emissions. The observations shall be conducted according to Section 11 of EPA Method 22. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course. The observation period shall be:

a. a minimum of 15 minutes if demonstrating compliance with 7.1.2.iii(a); or
c. a minimum of 1 hour if demonstrating compliance with 7.1.2.iii(b)

ii. The visible emission check shall be conducted initially within 180 days of start-up to demonstrate compliance while vapors are being sent to the control device.

iii. If during this visible emission check or at any other time visible emissions are observed, compliance with section 7.1.2(viii) of this permit shall be determined by conducting opacity tests in accordance with Method 9 or 40 CFR 60, Appendix A.

7.3.2. At such reasonable times as the Secretary may designate, the operator of any incinerator shall be required to conduct or have conducted stack tests to determine the particulate matter loading, by using 40 CFR Part 60, Appendix A, Method 5, and volatile organic compound loading, by using Methods 18 and 25A of 40 CFR Part 60, Appendix A, Method 320 of 40 CFR Part 63, Appendix A, or ASTM D 6348-03 or other equivalent U.S. EPA approved method approved by the Secretary, in exhaust gases. Such tests shall be conducted in such manner as the Secretary may specify and be filed on forms and in a manner acceptable to the Secretary. The Secretary may, at the Secretary's option, witness or conduct such stack tests. Should the Secretary exercise his or her option to conduct such tests, the operator will provide all the necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment such as scaffolding, railings and ladders to comply with generally accepted good safety practices. The Secretary may conduct such other tests as the Secretary may deem necessary to evaluate air pollution emissions other than those noted above. **[45CSR6 §§7.1 and 7.2]**

## 7.4. Recordkeeping Requirements

7.4.1. For the purpose of demonstrating compliance with the continuous pilot flame requirements in permit condition 7.1.2, the permittee shall maintain records of the times and duration of all periods when the pilot flame was not present and vapors were vented to the device.

i. If the permittee is demonstrating compliance to permit condition 7.2.3 with visual inspections, the permittee shall maintain records of the inspections.

7.4.2. For the purpose of demonstrating compliance with the visible emissions and opacity requirements, the permittee shall maintain records of the visible emission opacity tests and checks. The permittee shall maintain records of all monitoring data required by permit condition 7.3.1 documenting the date and time of each visible emission check, the emission point or equipment/ source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the evaluation, the record of observation may note "out of service" (O/S) or equivalent.

7.4.3. To demonstrate compliance with permit condition 7.1.2., the permittee shall maintain records of the manufacturer's specifications for operating and maintenance requirements to maintain the control efficiency.

7.4.4. To demonstrate compliance with the closed vent monitoring requirements in permit condition 7.2.2, records shall be maintained of:

i. The initial compliance requirements;

ii. If you are subject to the bypass requirements, the following records shall also be maintained:

(a) Each inspection or each time the key is checked out or a record of each time the alarm is sounded;

(b) Each occurrence that the control device was bypassed. If the device was bypassed, the records shall include the date, time, and duration of the event and shall provide the reason that the event occurred. The record shall also include the estimate of emissions that were released to the environment as a result of the bypass.

iii. Any part of the system that has been designated as "unsafe to inspect" in accordance with 8.2.2(d).

**[45CSR§13-5.11.]**

7.4.5. The permittee shall maintain records of any testing that is conducted according to section 7.3 of this permit.

7.4.6. All records required under Section 7.4 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the DAQ or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

7.4.7. To demonstrate compliance with permit condition 7.1.2.ix, the permittee shall record the volume of gas flared on a monthly basis.

## 7.5. Reporting Requirements

7.5.1. Any deviation of the allowable visible emission requirement for any emission source discovered during observation using 40CFR Part 60, Appendix A, Method 9 per permit condition 7.3.1(iii)

must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

7.5.2. Any bypass event of the registered control device must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the bypass, the estimate of VOC emissions released to the atmosphere as a result of the bypass, the cause or suspected cause of the bypass, and any corrective measures taken or planned.

7.5.3. Any time the air pollution control device is not operating when emissions are vented to it, shall be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days of the discovery.

## 8.0. Source-Specific Requirements [GPU Burners (3E-GPU1-8)]

### 8.1. Limitations and Standards

8.1.1. *Maximum Design Heat Input (MDHI).* The MDHI of each of the GPU Bruners (3E-GPU1-8) shall not exceed 2.0 MMTU/hr.

8.1.2. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average. **[45CSR§2-3.1.]**

### 8.2. Monitoring Requirements

8.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with permit condition 8.1.2. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

### 8.3 Testing Requirements

8.3.1. Upon request by the Secretary, compliance with the visible emission requirements of permit condition 8.1.2 shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Secretary. The Secretary may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of permit condition 8.1.2. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.
**[45CSR§2-3.2.]**

### 8.4. Recordkeeping Requirements

8.4.1. The permittee shall maintain records of all monitoring data required by permit condition 8.2.1 documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9.

## 9.0. Source-Specific Requirements [Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO)]

### 9.1. Limitations and Standards

9.1.1. The permittee of each pneumatic controller affected facility that commenced construction, modification or reconstruction after September 18, 2015 shall comply with the applicable requirements specified in 40 CFR Part 60, Subpart OOOOa

9.1.2. Each pneumatic controller affected facility at a location other than at a natural gas processing plant must have a bleed rate less than or equal to 6 standard cubic feet per hour.
**[40CFR§60.5390a(c)(1)]**

9.1.3. Each pneumatic controller affected facility at a location other than at a natural gas processing plant must be tagged with the month and year of installation, reconstruction or modification, and identification information that allows traceability to the records for that controller as required in §60.5420a(c)(4)(iii).
**[40CFR§60.5390a(c)(2)]**

9.1.4. To achieve initial compliance with methane and VOC emission standards for your pneumatic controller affected facility you must comply with the requirements specified in paragraphs (d)(1) through (6) of this section, as applicable.

(1) You must demonstrate initial compliance by maintaining records as specified in §60.5420a(c)(4)(ii) of your determination that the use of a pneumatic controller affected facility with a bleed rate greater than the applicable standard is required as specified in §60.5390a(b)(1) or (c)(1).

(2) N/A

(3) If you own or operate a pneumatic controller affected facility located other than at a natural gas processing plant, the controller manufacturer's design specifications for the controller must indicate that the controller emits less than or equal to 6 standard cubic feet of gas per hour.

(4) You must tag each new pneumatic controller affected facility according to the requirements of §60.5390a(b)(2) or (c)(2).

(5) You must include the information in paragraph (d)(1) of this section and a listing of the pneumatic controller affected facilities specified in paragraphs (d)(2) and (3) of this section in the initial annual report submitted for your pneumatic controller affected facilities constructed, modified or reconstructed during the period covered by the annual report according to the requirements of §60.5420a(b)(1) and (5).

(6) You must maintain the records as specified in §60.5420a(c)(4) for each pneumatic controller affected facility.

9.1.5. For each pneumatic controller affected facility, you must demonstrate continuous compliance according to paragraphs (d)(1) through (3) of this section.

(1) You must continuously operate the pneumatic controllers as required in §60.5390a(a), (b), or (c).

(2) You must submit the annual reports as required in §60.5420a(b)(1) and (5).

(3) You must maintain records as required in §60.5420a(c)(4).

### 9.2. Reporting Requirements

9.2.1. You must perform the reporting as required by §60.5420a(b)(1) and (5) and the recordkeeping as required by §60.5420a(c)(4).
**[40CFR§60.5390a(f)]**

## 10.0. Source-Specific Requirements [Pneumatic Pump Affected Facility (NSPS, Subpart OOOOa)]

### 10.1. Limitations and Standards

10.1.1. The permittee of each pneumatic pump affected facility that commenced construction, modification or reconstruction after September 18, 2015 shall comply with the applicable requirements specified in 40 CFR Part 60, Subpart OOOOa.

10.1.2. If the pneumatic pump affected facility is located at a greenfield site as defined in §60.5430a, you must reduce natural gas emissions by 95.0 percent, except as provided in paragraphs (b)(3) and (4) of this section.
**[40CFR§60.5393a(b)(1)]**

10.1.3. You are not required to install a control device solely for the purpose of complying with the 95.0 percent reduction requirement of paragraph (b)(1) or (b)(2) of this section. If you do not have a control device installed on site by the compliance date and you do not have the ability to route to a process, then you must comply instead with the provisions of paragraphs (b)(3)(i) and (ii) of this section.

(i) Submit a certification in accordance with §60.5420a(b)(8)(i)(A) in your next annual report, certifying that there is no available control device or process on site and maintain the records in §60.5420a(c)(16)(i) and (ii).

(ii) If you subsequently install a control device or have the ability to route to a process, you are no longer required to comply with paragraph (b)(2)(i) of this section and must submit the information in §60.5420a(b)(8)(ii) in your next annual report and maintain the records in §60.5420a(c)(16)(i), (ii), and (iii). You must be in compliance with the requirements of paragraph (b)(2) of this section within 30 days of startup of the control device or within 30 days of the ability to route to a process.
**[40CFR§60.5393a(b)(3)]**

10.1.4. If the control device available on site is unable to achieve a 95 percent reduction and there is no ability to route the emissions to a process, you must still route the pneumatic pump affected facility's emissions to that existing control device. If you route the pneumatic pump affected facility to a control device installed on site that is designed to achieve less than a 95 percent reduction, you must submit the information specified in §60.5420a(b)(8)(i)(C) in your next annual report and maintain the records in §60.5420a(c)(16)(iii).
**[40CFR§60.5393a(b)(4)]**

10.1.5. If the pneumatic pump is routed to a control device or a process and the control device or process is subsequently removed from the location or is no longer available, you are no longer required to be in compliance with the requirements of paragraph (b)(1) or (b)(2) of this section, and instead must comply with paragraph (b)(3) of this section and report the change in next annual report in accordance with §60.5420a(b)(8)(ii).
**[40CFR§60.5393a(b)(6)]**

10.1.6. If you use a control device or route to a process to reduce emissions, you must connect the pneumatic pump affected facility through a closed vent system that meets the requirements of §60.5411a(a) and (d).
**[40CFR§60.5393a(c)]**

10.1.7. You must demonstrate initial compliance with standards that apply to pneumatic pump affected facilities as required by §60.5410a(e).
**[40CFR§60.5393a(d)]**

### 10.2. Reporting Requirements

10.2.1. You must perform the reporting as required by §60.5420a(b)(1) and (8) and the recordkeeping as required by §60.5420a(c)(6) through (10), (16), and (17), as applicable.
**[40CFR§60.5393a(e)]**

## 11.0. Source-Specific Requirements [Flare (6E-FL) controlling Diaphragm Pump (10S-Pump)]

### 11.1. Limitations and Standards

11.1.1. *Operation and Maintenance of Flare (6E-FL).* The permittee shall, to the extent practicable, install, maintain, and operate the vapor combustors and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
**[45CSR§13-5.11.]**

11.1.2. The permittee shall comply with the design and operating requirements below:

i. Vapors that are being controlled by the flare shall be routed to the flare at all times.

ii. The flare (6E-FL) shall be operated with a flame present at all times, as determined by the methods specified in permit condition 11.2.1.

iii. The flare (6E-FL) shall be designed according to the requirements specified in § 60.18;

iv. The flare (6E-FL) shall be operated at all times when emissions are vented to them;

v. To ensure compliance with permit condition 11.1.2.iv, the permittee shall monitor in accordance with section permit condition 11.2.1.

vi. The flare (6E-FL) shall be designed for and operated with no visible emissions as determined by the methods specified in permit condition 11.3.1, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours; and,

vii. The permittee shall monitor the flare (6E-FL) to ensure that it is operated and maintained in conformance with their designs.

viii. The National Oilwell Varco produced gas flare shall have a maximum design heat input of 74.73 MMBTU/hr.

ix. The flare (6E-FL) is subject to the applicable requirements specified in 45CSR6.

## 11.2. Monitoring Requirements

11.2.1. To demonstrate compliance with the pilot flame requirements of permit condition 11.1.2, the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out.

## 11.3. Testing Requirements

11.3.1. To demonstrate compliance with the visible emissions requirements of permit condition 11.1.2, the permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

i. The visible emission check shall determine the presence or absence of visible emissions. The observations shall be conducted according to Section 11 of EPA Method 22. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course. The observation period shall be a minimum of 2 hours if demonstrating compliance with 11.1.2.

ii. The visible emission check shall be conducted initially within 180 days of start-up to demonstrate compliance while vapors are being sent to the control device.

iii. If during this visible emission check or at any other time visible emissions are observed, compliance with permit condition 11.1.2.ix shall be determined by conducting opacity tests in accordance with Method 9 or 40 CFR 60, Appendix A.

11.3.2. A flare that is designed and operated in accordance with §60.18(b) shall not require a compliance demonstration, unless at the request of the Secretary, but must conduct visible emission check.

11.3.3. At such reasonable times as the Secretary may designate, the operator of any incinerator shall be required to conduct or have conducted stack tests to determine the particulate matter loading, by using 40 CFR Part 60, Appendix A, Method 5, and volatile organic compound loading, by using Methods 18 and 25A of 40 CFR Part 60, Appendix A, Method 320 of 40 CFR Part 63, Appendix A, or ASTM D 6348-03 or other equivalent U.S. EPA approved method approved by the Secretary, in exhaust gases. Such tests shall be conducted in such manner as the Secretary may specify and be filed on forms and in a manner acceptable to the Secretary. The Secretary may, at the Secretary's option, witness or conduct such stack tests. Should the Secretary exercise his or her option to conduct such tests, the operator will provide all the necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment such as scaffolding, railings and ladders to comply with generally accepted good safety practices. The Secretary may conduct such other tests as the Secretary may deem necessary to evaluate air pollution emissions other than those noted above. **[45CSR6 §§7.1 and 7.2]**

## 11.4. Recordkeeping Requirements

11.4.1. For the purpose of demonstrating compliance with the design requirements in permit condition 11.1.2, the permittee shall maintain a record of the flare design evaluation. The flare design evaluation shall include, net heat value calculations, exit (tip) velocity calculations, and all supporting concentration calculations.

11.4.2. For the purpose of demonstrating compliance with the continuous pilot flame requirements in permit condition 11.1.2, the permittee shall maintain records of the times and duration of all periods when the pilot flame was not present and vapors were vented to the device.

11.4.3. For the purpose of demonstrating compliance with the visible emissions and opacity requirements, the permittee shall maintain records of the visible emission opacity tests and checks. The permittee shall maintain records of all monitoring data required by permit condition 11.3.1 documenting the date and time of each visible emission check, the emission point or equipment/ source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the evaluation, the record of observation may note "out of service" (O/S) or equivalent.

11.4.4. To demonstrate compliance with permit condition 11.1.2.viii, the permittee shall record the volume of gas flared on a monthly basis.

11.4.5. All records required under Section 11.4 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the DAQ or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

## 11.5. Reporting Requirements

11.5.1. Any deviation of the allowable visible emission requirement for any emission source discovered during observation using 40CFR Part 60, Appendix A, Method 9 per permit condition 11.3.1(iii) must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

11.5.2. Any bypass event of the flare (6E-FL) must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the bypass, the estimate of VOC emissions released to the atmosphere as a result of the bypass, the cause or suspected cause of the bypass, and any corrective measures taken or planned.

11.5.3. Any time the flare (6E-FL) is not operating when emissions are vented to it, shall be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days of the discovery.

# 12.0. Source-Specific Requirements [Fugitive Emissions GHG and VOC Standards (NSPS, Subpart OOOOa)]

## 12.1. Limitations and Standards

12.1.1. The permittee of each affected facility (collection of fugitive emissions components at a well site) that commenced construction, modification or reconstruction after September 18, 2015 shall comply with the applicable requirements specified in 40 CFR Part 60, Subpart OOOOa.

12.1.2. You must monitor all fugitive emission components, as defined in §60.5430a, in accordance with paragraphs (b) through (g) of this section. You must repair all sources of fugitive emissions in accordance with paragraph (h) of this section. You must keep records in accordance with paragraph (i) of this section and report in accordance with paragraph (j) of this section. For purposes of this section, fugitive emissions are defined as: Any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 ppm or greater using Method 21.
**[40CFR§60.5397a(a)]**

12.1.3. You must develop an emissions monitoring plan that covers the collection of fugitive emissions components at well sites and compressor stations within each company-defined area in accordance with paragraphs (c) and (d) of this section.
**[40CFR§60.5397a(b)]**

12.1.4. Each monitoring survey shall observe each fugitive emissions component, as defined in §60.5430a, for fugitive emissions.
**[40CFR§60.5397a(e)]**

12.1.5. You must conduct an initial monitoring survey within 60 days of the startup of production, as defined in §60.5430a, for each collection of fugitive emissions components at a new well site or by June 3, 2017, whichever is later. For a modified collection of fugitive emissions components at a well site, the initial monitoring survey must be conducted within 60 days of the first day of production for each collection of fugitive emission components after the modification or by June 3, 2017, whichever is later.
**[40CFR§60.5397a(f)]**

12.1.6. A monitoring survey of each collection of fugitive emissions components at a well site within a company-defined area must be conducted at least semiannually after the initial survey. Consecutive semiannual monitoring surveys must be conducted at least 4 months apart.
**[40CFR§60.5397a(g)(1)]**

12.1.7. Fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as difficult-to-monitor. Fugitive emissions components that are designated difficult-to-monitor must meet the specifications of paragraphs (g)(3)(i) through (iv) of this section.
**[40CFR§60.5397a(g)(3)]**

12.1.8. Fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be designated as unsafe-to-monitor. Fugitive emissions components that are designated unsafe-to-monitor must meet the specifications of paragraphs (g)(4)(i) through (iv) of this section.
**[40CFR§60.5397a(g)(4)]**

12.1.9. Each identified source of fugitive emissions shall be repaired or replaced in accordance with paragraphs (h)(1) and (2) of this section. For fugitive emissions components also subject to the repair provisions of §§60.5416a(b)(9) through (12) and (c)(4) through (7), those provisions apply

instead to those closed vent system and covers, and the repair provisions of paragraphs (h)(1) and (2) of this section do not apply to those closed vent systems and covers.
**[40CFR§60.5397a(h)]**

12.1.10. Each repaired or replaced fugitive emissions component must be resurveyed as soon as practicable, but no later than 30 days after being repaired, to ensure that there are no fugitive emissions.
**[40CFR§60.5397a(h)(3)]**

### 12.2. Recordkeeping Requirements

12.2.1. Records for each monitoring survey shall be maintained as specified §60.5420a(c)(15).
**[40CFR§60.5397a(i)]**

### 12.3. Reporting Requirements

12.2.1. Annual reports shall be submitted for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station that include the information specified in §60.5420a(b)(7). Multiple collection of fugitive emissions components at a well site or at a compressor station may be included in a single annual report.
**[40CFR§60.5397a(j)]**

## 13.0. Source-Specific Requirements [Tanker Truck Loading]

### 13.1. Limitations and Standards

13.1.1. *Vapor Combustor (4E-COMB).* The permittee shall install, operate, and maintain the vapor combustor (4E-COMB) in accordance with the applicable requirements of section 7.0 of this permit.

13.1.2. The maximum quantity of produced water that shall be loaded shall not exceed 85,848,000 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

13.1.3. The Produced Water Truck Loading shall be operated in accordance with the plans and specifications filed in Permit Application R13-3345.

### 13.2. Recordkeeping Requirements

13.2.1. All records required under Section 13.2 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

13.2.2. To demonstrate compliance with permit condition 13.1.2, the permittee shall maintain a record of the aggregate throughput for the product loadout rack on a monthly and rolling twelve month total. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection

and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

## 14.0. Source-Specific Requirements [Fuel Cell (8E)]

### 14.1. Limitations and Standards

14.1.1. The maximum quantity of propane that shall be consumed in the Acumentrics Remote Power System fuel cell (8E) shall not exceed 526 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

14.1.2. The Acumentrics Remote Power System fuel cell (8E) shall be operated in accordance with the plans and specifications filed in Permit Application R13-3345.

### 14.2. Recordkeeping Requirements

14.2.1. All records required under Section 14.2 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

14.2.2. To demonstrate compliance with permit condition 14.1.2, the permittee shall maintain a record of the propane consumed on a monthly and rolling twelve month total. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

# CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] (please use blue ink) _____ Responsible Official or Authorized Representative _____ Date

Name & Title (please print or type) _____ Name _____ Title

Telephone No. _____ Fax No. _____

1 This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

(ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

## Williams, Jerry

**From:** Williams, Jerry
**Sent:** Tuesday, November 22, 2016 10:59 AM
**To:** 'rj.moses@nblenergy.com'; Phil Schlagel
**Cc:** McKeone, Beverly D
**Subject:** WV DAQ NSR Permit Application Complete for Noble Energy, Inc. - SHL22

**RE: Application Status: Complete**
**Noble Energy, Inc. - SHL22**
**Permit Application R13-3345**
**Plant ID No. 051-00230**

Mr. Moses,

Your application for a construction permit for a natural gas production facility was received by this Division on October 14, 2016 and assigned to the writer for review. Upon review of said application, it was determined that the application was incomplete and additional information was requested. The requested information was fully received on November 21, 2016, therefore, the statutory review period commenced on November 21, 2016.

**In the case of this application, the agency believes it will take approximately 90 days to make a final permit determination.**

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

NON-CONFIDENTIAL

## Williams, Jerry

**From:** Phil Schlagel <Phil.Schlagel@nblenergy.com>
**Sent:** Monday, November 21, 2016 9:28 AM
**To:** Williams, Jerry; RJ Moses
**Cc:** McKeone, Beverly D; Grant Morgan
**Subject:** RE: WV DAQ Permit Application Incomplete for Noble Energy, Inc. - SHL 22
**Attachments:** SHL-22 - ERM Response to WVDAQ Incompleteness Letter.pdf

Jerry, here is the response to the additional information request on SHL 22.

Please let me know if you have any additional questions.

---

**From:** Williams, Jerry [mailto:Jerry.Williams@wv.gov]
**Sent:** Wednesday, November 09, 2016 12:27 PM
**To:** Phil Schlagel; RJ Moses
**Cc:** McKeone, Beverly D
**Subject:** EXTERNAL: WV DAQ Permit Application Incomplete for Noble Energy, Inc. - SHL 22

**RE: Application Status: Incomplete**
**Noble Energy, Inc. - SHL 22**
**Permit Application No. R13-3345**
**Plant ID No. 051-00230**

NON-CONFIDENTIAL

Mr. Moses,

Your application for a construction permit for a natural gas production facility was received by this Division on October 14, 2016 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Please provide the manufacturer's data (specification sheet) for the engine (9S-GEN) and the NSCR manufacturer data (specification sheet) for this engine. Is this engine EPA certified? If so, please include the EPA Certificate of Conformity.
2. Please provide the PM10 and SO2 emissions for the vapor combustor (4S-COMB).
3. Please provide the haulroad emissions (PM10, PM2.5).
4. Please provide the VOC, PM10, SO2 and HAP emissions for the flare (6S-FL).
5. Please provide the CO2e emissions for all 11S sources.
6. Please provide the VOC and HAP emissions for the pneumatic level control valves (11S-LC1-16).
7. Please provide the CO2e emissions for the produced water truck loadout (2S-TL1).

Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality

601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov


Please consider the environment before printing this email.

1000 Noble Energy Drive
Canonsburg, PA 15317
Tel: 724-820-3000
Fax: 724-820-3098
www.nobleenergyinc.com

November 18, 2016

Mr. Jerry Williams
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

RE: Application Status: Incomplete
Noble Energy Inc. - SHL-22
Permit Application No. R13-3345
Plant ID No. 051-00230

Dear Mr. Williams:

Noble Energy respectfully submits these updates to the SHL-22 permit application in response to the incompleteness letter dated November 9th, 2016. Included within this submittal are updates to each of the requested calculation submittals and an updated emission summary sheet. To aid in the review process, Noble has provided a short response to each item, explaining the calculation methodology and updates that have been completed.

Item 1 - Noble Energy has decided to remove the generator engine (9S-GEN) from the permit application based upon the availability of power service in the area. The potential to emit (PTE) from 9S-GEN has been removed from the emission summary sheet included with this submittal.

Item 2 - Noble has updated the PTE of the vapor combustor (4S-COMB) to include SO2 and PM10 emissions from the operation of the combustion burner and the operation of the pilot light. Noble has utilized AP-42 emission factors to provide the requested emission estimates.

Item 3 - Noble includes with this submission an emission estimate for particulate haul road emissions based upon the expected number of tanker trucks required to unload the fluids realized at the SHL-22 facility.

Item 4 - Noble has updated the PTE of the flare (6S-FL) to include all of the requested pollutants. Emissions are estimated based upon the contributions from the burner, pilot, and diaphragm pump. The PTE of VOCs and HAPs is based upon the mass of un-combusted vent vapors for the burner, utilizing a 98 percent control efficiency for the flare. Pilot light and diaphragm pump VOC and HAP emissions are based upon AP-42 emission factors. Emission estimates for PM and SO2 are provided based upon AP 42 emission factors.

Item 5 - Noble has updated the PTE for all 11S sources to include CO2e utilizing the global warming potentials from 40CFR98.

Item 6 - Noble has updated the PTE for 11S-LC1-16 to include VOC and HAP emission contributions. This updated has been reflected in the updated Attachment N and the updated Emission Summary Sheet, provided as Attachment J.

Item 7 - Noble has provided an update to include the CO2e PTE from produced water truck loadout 2S-TL-1 and has reflected this update in Attachment N and Attachment J.

Noble Energy appreciates the West Virginia Department of Environmental Protection, Division of Air Quality's efforts in the review and extension of a Rule 13 air permit for the SHL-22 Facility. Should the agency require any additional information in order to deem this application complete, please contact Mr. Phil Schlagel of Noble Energy at 281 - 872 - 3202 or Mr. Grant Morgan of Environmental Resources Management, Inc. at 304 - 757 - 4777.

Sincerely,

Phil Schlagel
Air Quality Manager
Noble Energy, Inc.

Enclosures:

## EMISSION SUMMARY SHEET
## Noble Energy, Inc. SHL 22 Production Facility

| Emission Point ID No. (Must match Emission Units Table & Plot Plan) | Emission Point Type[1] | Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan) | | Air Pollution Control Device (must match Emission Units Table & Plot Plan) | | Vent Time for Emission Unit (chemical processes only) | | All Regulated Pollutants - Chemical Name/CAS[2] (Speciate VOCs & HAPS) See Detail Sheets | Maximum Potential Uncontrolled Emissions[3] | | Maximum Potential Controlled Emissions[4] | | Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used[5] | Emission Concentration[7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| 2E-TL1 | Vent | 2S-TL1 | Produced water truck loadout | N/A | N/A | N/A | N/A | VOC | 0.53 | 2.30 | 0.53 | 2.30 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.48 | 0.00 | 0.48 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 0.44 | 1.93 | 0.44 | 1.93 | Gas/Vapor | | |
| 3E-GPU1 | Heater Stack | 3S-GPU1 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 3E-GPU2 | Heater Stack | 3S-GPU2 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 3E-GPU3 | Heater Stack | 3S-GPU3 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 3E-GPU4 | Heater Stack | 3S-GPU4 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 3E-GPU5 | Heater Stack | 3S-GPU5 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 3E-GPU6 | Heater Stack | 3S-GPU6 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |

## EMISSION SUMMARY SHEET
## Noble Energy, Inc. SHL 22 Production Facility

| Emission Point ID No. (Must match Emission Units Table & Plot Plan) | Emission Point Type[1] | Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan) | | Air Pollution Control Device (must match Emission Units Table & Plot Plan) | | Vent Time for Emission Unit (chemical processes only) | | All Regulated Pollutants - Chemical Name/CAS[2] (Speciate VOCs & HAPS) See Detail Sheets | Maximum Potential Uncontrolled Emissions[3] | | Maximum Potential Controlled Emissions[4] | | Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used[5] | Emission Concentration[7] (ppmv or mg/m[4]) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| 3E-GPU7 | Heater Stack | 3S-GPU7 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 3E-GPU8 | Heater Stack | 3S-GPU8 | GPU Burner | N/A | N/A | N/A | N/A | NOx | 0.17 | 0.73 | 0.17 | 0.73 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.14 | 0.61 | 0.14 | 0.61 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.01 | 0.04 | 0.01 | 0.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.01 | 0.06 | 0.01 | 0.06 | Particulate | AP-42 | |
| | | | | | | | | Formaldehyde | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 200.10 | 876.42 | 200.10 | 876.42 | Gas/Vapor | AP-42 | |
| 4E-COMB | Stack | 4S-COMB | One (1) Vapor Combustor | N/A | N/A | N/A | N/A | NOx | 0.80 | 3.48 | 0.80 | 3.48 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 3.63 | 15.89 | 3.63 | 15.89 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.01 | 0.05 | 0.01 | 0.05 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.09 | 0.38 | 0.09 | 0.38 | Particulate | AP-42 | |
| | | | | | | | | CO2e | 1,381.57 | 6,051.25 | 1,381.57 | 6,051.25 | Gas/Vapor | AP-42 | |
| 4E-COMB | Stack | 1S-TK1-4 | One (1) Vapor Combustor | 4C-COMB | ECD | N/A | N/A | VOC | 5.81 | 25.44 | 0.12 | 0.51 | Gas/Vapor | FESCO Study / Tanks | |
| | | | | | | | | HAPs | 0.00 | 0.00 | 0.01 | 0.04 | Gas/Vapor | FESCO Study / Tanks | |
| 4E-COMB | Stack | 2S-TL1 | One (1) Vapor Combustor | 4C-COMB | ECD | N/A | N/A | VOC | 1.23 | 5.37 | 0.02 | 0.11 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 0.26 | 1.13 | 0.01 | 0.02 | Gas/Vapor | AP-42 | |
| 5E-PILOT | Stack | 5S-PILOT | One (1) Vapor Combustor Pilot | N/A | N/A | N/A | N/A | NOx | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.00 | 0.00 | 0.00 | 0.00 | Particulate | AP-42 | |
| 6E-FL | Stack | 6S-FL<br>10S-Pump<br>7S-PILOT | flare<br>Sandpiper Diaphragm Pump<br>Flare Pilot | N/A | N/A | N/A | N/A | NOx | 5.20 | 1.04 | 5.20 | 1.04 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 23.64 | 4.39 | 23.64 | 4.39 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.00 | 0.11 | 0.00 | 0.11 | Particulate | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.01 | 0.00 | 0.01 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 908.95 | 167.27 | 18.34 | 3.35 | Gas/Vapor | AP-42 | |
| | | | | | | | | HAPs | 66.69 | 12.27 | 1.35 | 0.25 | Gas/Vapor | AP-42 | |
| | | | | | | | | N2O | 0.08 | 0.02 | 0.08 | 0.02 | Gas/Vapor | AP-42 | |
| | | | | | | | | CH4 | 4.13 | 18.08 | 4.13 | 18.08 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2 | 8,989.84 | 1,749.18 | 8,989.84 | 1,749.18 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO2e | 9,116.33 | 2,205.67 | 9,116.33 | 2,205.67 | Gas/Vapor | AP-42 | |

## EMISSION SUMMARY SHEET
## Noble Energy, Inc. SHL 22 Production Facility

| Emission Point ID No. (Must match Emission Units Table & Plot Plan) | Emission Point Type[1] | Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan) | | Air Pollution Control Device (must match Emission Units Table & Plot Plan) | | Vent Time for Emission Unit (chemical processes only) | | All Regulated Pollutants - Chemical Name/CAS[2] (Speciate VOCs & HAPS) See Detail Sheets | Maximum Potential Uncontrolled Emissions[3] | | Maximum Potential Controlled Emissions[4] | | Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used[5] | Emission Concentration[7] (ppmv or mg/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| 8E-FC | Stack | 8S-FC | Fuel Cell | N/A | N/A | N/A | N/A | NOx | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | CO | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | VOC | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas/Vapor | AP-42 | |
| | | | | | | | | PM10 | 0.00 | 0.00 | 0.00 | 0.00 | Particulate | AP-42 | |
| | | | | | | | | CO2e | 0.75 | 3.29 | 0.75 | 3.29 | Gas/Vapor | AP-42 | |
| 11E-FC1-8 | Vent | 11S-FC1-8 | Pneumatic Flow Control Valves | N/A | N/A | N/A | N/A | VOC | 2.46 | 10.76 | 2.46 | 10.76 | Gas/Vapor | HYSYS | |
| | | | | | | | | HAPs | 0.20 | 0.86 | 0.20 | 0.86 | Gas/Vapor | HYSYS | |
| | | | | | | | | CO2e | 331.30 | 1451.09 | 331.30 | 1451.09 | Gas/Vapor | HYSYS | |
| 11E-BP | Vent | 11S-BP | Pneumatic Back Pressure Control Valve | N/A | N/A | N/A | N/A | VOC | 0.31 | 1.34 | 0.31 | 1.34 | Gas/Vapor | HYSYS | |
| | | | | | | | | HAPs | 0.02 | 0.11 | 0.02 | 0.11 | Gas/Vapor | HYSYS | |
| | | | | | | | | CO2e | 41.41 | 181.39 | 41.41 | 181.39 | Gas/Vapor | HYSYS | |
| 11E-LC1-16 | Vent | 11S-LC1-16 | Pneumatic Level Control Valves | N/A | N/A | N/A | N/A | VOC | 0.01 | 0.06 | 0.01 | 0.06 | Gas/Vapor | HYSYS | |
| | | | | | | | | HAPs | 0.20 | 0.00 | 0.20 | 0.00 | Gas/Vapor | HYSYS | |
| | | | | | | | | CO2e | 1.84 | 8.06 | 1.84 | 8.06 | Gas/Vapor | HYSYS | |

**Noble Energy, Inc; SHL 22 Production Facility**
**Produced Water Truck Loadout**

| | | | |
|---|---|---|---|
| Source ID Number | **2S-TL1** | **Location** | |
| | | Zone | 17N |
| Source Description | Produced Water Truck Loadout | Easting | 536119.56 |
| Source Usage | Produced Water Truck Loadout | Northing | 4428832.5 |
| | | Latitude | 39.995766 |
| Potential operation | 8,760 | Longitiude | -80.560996 |
| Capture Efficiency | 70% | | |
| Control Efficiency | 98% | | |
| *HAP Speciation* | | | |
| BTEX | 2.40% wt% of VOC | Based on FESCO PW study; ratio of lb BTEX/bbl to lb VOC/bbl of PW | |
| Total HAPs | 20.96% wt% of VOC | | |
| *GHG Speciation* | | | |
| Methane | 3.35% | Based on FESCO PW study; ratio of lb GHG/bbl to lb VOC/bbl of PW | |
| Carbon Dioxide | 0.03% | Based on FESCO PW study; ratio of lb GHG/bbl to lb VOC/bbl of PW | |

*Potential Emissions*

| Pollutant | EPA S Factor | True VP of Liquid (psia) | Mol. Wt. of Vapors[4] (lb/lb-mol) | T of Liquid[5] (R) | Oil Volume (bbl/yr)[2] | Estimated Emissions | | | Source of Emission Factor | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (lb/1000 gal) | (lb/hr) | (tpy) | | |
| VOC | 0.6 | 12.00 | 64 | 530 | 33,726 | 10.83 | 0.53 | 2.30 | AP-42[1] | ATMOSPHERE |
| HAPs | | | | | | | 0.001 | 0.48 | AP-42[1] | ATMOSPHERE |
| CO2e | | | | | | | 0.44 | 1.93 | AP-42[1] | ATMOSPHERE |
| VOC | 0.6 | 12.00 | 64 | 530 | 33,726 | 10.83 | 1.23 | 5.37 | AP-42[1] | To VDU |
| HAPs | | | | | | | 0.00 | 1.13 | AP-42[1] | To VDU |
| CO2e | | | | | | | 1.03 | 4.51 | AP-42[1] | To VDU |
| VOC | 0.6 | 12.00 | 64 | 530 | 33,726 | 10.83 | 0.02 | 0.11 | AP-42[1] | Controlled |
| HAPs | | | | | | | 0.00 | 0.02 | AP-42[1] | Controlled |
| CO2e | | | | | | | 0.02 | 0.09 | AP-42[1] | Controlled |

[1] EPA AP-42, Volume I, Fifth Edition - January 1995, Table 5.2-1, Saturation (S) Factors for Calculating Petroleum Liquid Loading Losses

[2]The oil volume for this calculation assumes that 1.65% of the produced water volume is oil.

[3]EPA AP-42, Volume I, Fifth Edition - January 1995, Section 5.2.2.1.1. Assumes a minimum collection efficiency of 70%.

[4]Molecular Weight of Vapors comes from TANKS4.0.9 run, Liquid Contents of Storage Tank table

[5]Temperature comes from HYSYS run, "Water Out" stream

**Noble Energy, Inc; SHL 22 Production Facility**
**Enclosed Flare Detail Sheet**

| | | | | | |
|---|---|---|---|---|---|
| Source ID Number | | | | | |
| Equipment ID | 4S-COMB1 | | **Truck Loading VOC Emissions & Tank Emissions** | | |
| Equipment Usage | Vapor Combustor | | Produced Water Tanks | 25.44 tpy VOC | 3.21 tpy HAPs |
| | | | Produced Water Loading | 5.37 tpy VOC | 1.13 tpy HAPs |
| Equipment Make | Leed | | Total VOC Emissions | 30.81 tpy | 4.34 tpy HAPs |
| Equipment Model | LDF1350 Dual Stage Combustor | | | | |
| Serial Number | Unknown | | Control Efficiency | 98% | 98% |
| Installation Date | 02/01/17 | | Controlled VOC Emissions | 0.62 tpy | 0.09 tpy HAPs |
| Emission Controls | None | | **Combustion** | | |
| **Pilot** | | | Molecular Weight of Vapors | lb/lb-mol | |
| Fuel Heating Value | 1200 | Btu/scf | Fuel Heating Value | 1950 Btu/scf | |
| Design Heat Rate | 0.02 | MMBtu/hr | Potential Heat Output | 11.700 MMBtu/hr | |
| Site Heat Rate | 0.02 | MMBtu/hr | VOC Vapors sent to flare | 61613.0 lbs/yr | |
| Potential Operation | 365 | days/yr | Potential Operation | 365 days/yr | |
| Potential Fuel Usage | **0.30** | Mscf/day | Ave. Gas Flared | 144.000 Mscf/day | |

9S-PILOT1
Combustor Pilot Emissions

| Pollutant | Emission Factor lb/MMSCF | Annual gas Usage MMSCF/yr | Hrs of Operation (hrs/yr) | Estimated Emissions (lb/hr) | Estimated Emissions Pilot tpy | Source of Emission Factor |
|---|---|---|---|---|---|---|
| NOx | 100 | 0.11 | 8760 | 0.00 | 0.01 | AP-42[2] |
| CO | 84 | 0.11 | 8760 | 0.00 | 0.005 | AP-42[2] |
| PM10 | 8 | 0.11 | 8760 | 0.00 | 0.00 | AP-42[2] |
| VOC | 6 | 0.11 | 8760 | 0.00 | 0.00 | AP-42[2] |
| $N_2O$ | 1.0 | 0.11 | 8760 | 0.00 | 0.00 | API |
| $SO_2$ | 0.6 | 0.11 | 8760 | 0.00 | 0.00 | AP-42[2] |
| Hexane | 1.8 | 0.11 | 8760 | 0.00 | 0.00 | AP-42[2] |
| Formaldehyde | 0.1 | 0.11 | 8760 | 0.00 | 0.00 | AP-42[2] |
| $CO_2$ | 120,000 | 0.11 | 8760 | 1.50 | 6.57 | AP-42[2] |

*Potential Combustion Emissions*

| Pollutant | Emission Factor lb/MMBtu | Annual gas Usage MMBtu/yr | Estimated Emissions tpy | Emission Factor Source |
|---|---|---|---|---|
| NOx | 0.068 | 102492 | 3.48 | AP-42[1] |
| CO | 0.310 | 102492 | 15.89 | AP-42[1] |
| PM10 | 0.007 | 102492 | 0.38 | AP-42[2] |
| $N_2O$ | 0.001 | 102492 | 0.05 | API |
| $SO_2$ | 0.0006 | 102492 | 0.03 | AP-42[2] |
| CO2 | 117.650 | 102492 | 6029.09 | AP-42[1] |

*Total Potential Vapor Combustor Emissions*

| Pollutant | tpy | lb/hr |
|---|---|---|
| NOx | 3.49 | 0.80 |
| CO | 15.89 | 3.63 |
| PM10 | 0.38 | **0.09** |
| VOC | 0.62 | 0.14 |
| HAPs | 0.09 | 0.02 |
| $N_2O$ | 0.05 | 0.01 |
| $SO_2$ | 0.03 | 0.007 |
| $CO_2$ | 6035.66 | 1378.01 |
| $CO_2e$ | 6051.25 | 1381.57 |

[1] EPA AP-42, Volume I, Fifth Edition - April 2015, Table 13.5-1, Emission Factors for Flare Operations.

[2] EPA AP-42, Volume I, Fifth Edition - September 1991, Table 1.4, Emission Factors for Natural Gas Combustion

## Fugitive Emissions from Unpaved Haul Roads

| Constant | Industrial Roads | | |
|---|---|---|---|
| | PM | PM-10 | PM-2.5 |
| k (lb/VMT) | 4.9 | 1.5 | 0.15 |
| a | 0.7 | 0.9 | 0.9 |
| b | 0.45 | 0.45 | 0.45 |

where

| | | |
|---|---|---|
| k | | Particle size multiplier [1] |
| s | 4.8 | Silt content of road surface material (%)[2] |
| p | 150 | Number of days per year with precipitation >0.01 in.[3] |

| Item Number | Description | Number of Wheels | W Mean Vehicle Weight (tons) | Mean Vehicle Speed (mph) | Miles per Trip | Maximum Trips per Hour | Maximum Trips per Year | Control Device ID Number | Control Efficiency (%) | PM Emissions (lbs/hr) | PM Emissions (tons/yr) | PM-10 Emissions (lbs/hr) | PM-10 Emissions (tons/yr) | PM-2.5 Emissions (lbs/hr) | PM-2.5 Emissions (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Liquids Hauling | 14 | 30 | 10 | 1.6 | 1 | 20,777 | NA | NA | 6.85 | 71.20 | 1.75 | 18.15 | 0.17 | 1.815 |
| 2 | Employee Vehicles | 4 | 3 | 10 | 1.6 | 1 | 200 | NA | NA | 2.43 | 0.24 | 0.62 | 0.06 | 0.06 | <0.01 |
| | | | | | | | | | Totals: | 9.28 | 71.44 | 2.37 | 18.21 | 0.24 | 1.821 |

**Notes:**

[1] - Particle Size Multiplier used from AP-42 13.2.2 - Final Version 11/2006

[2] - Silt Content of Road Surface uses Sand and Gravel Processing Plant Road from AP-42 13.2.2 - Final Version 11/2006

[3] - Number of days per year with precipitation >0.01 in found using AP-42 13.2.2 Figure 13.2.2-1 - Final Version 11/2006

**Example Calculations:**

Emissions (lb/Vehicle Mile Traveled) - $E = k \times (s/12)^a \times (W/3)^b$ Equation 1a from AP-42 13.2.2 - Final Version 11/2006

Size Specific Emissions (lb/VMT) - $E_{ext} = E[(365-p)/365]$ Equation 2 from AP-42 13.2.2 - Final Version 11/2006

**Noble Energy, Inc; SHL 22 Production Facility**
**Flare Detail Sheet**

| | | | | VOC | | HAPs | |
|---|---|---|---|---|---|---|---|
| Source ID Number | 6S-FL | | Unloading Vessel | 165.84 tpy | | 12.1670034 tpy | |
| Equipment ID | 6C-FL | | Diaphragm Pump | 1.44 tpy | | 0.11 tpy | |
| Equipment Usage | Unloading Vessel Control<br>Sandpiper Diaphragm Pump Control | | | | | | |
| Equipment Make | **NOV** | | Total Emissions | 167.27 tpy | **UNCONTROLLED** | 12.27 tpy | **UNCONTROLLED** |
| Equipment Model | Produced Gas Flare | | | 908.95 lb/hr | **UNCONTROLLED** | 66.69 lb/hr | **UNCONTROLLED** |
| Serial Number | Unknown | | Control Efficiency | 98% | | 98% | |
| Installation Date | 02/01/17 | | Controlled Emissions | 3.35 tpy | **CONTROLLED** | 0.25 tpy | **CONTROLLED** |
| | | | | 18.18 lb/hr | **CONTROLLED** | 1.33 lb/hr | **CONTROLLED** |
| **Pilot** | | | | | | | |
| Fuel Heating Value | 1220 | **Btu/scf** | Fuel Heating Value | 1150 **Btu/scf** | | | |
| Design Heat Rate | 0.26 | **MMBtu/hr** | Potential Heat Output | **74.727 MMBtu/hr** | | | |
| Site Heat Rate | 0.26 | MMBtu/hr | VOC Vapors sent to flare | 334546.0 lbs/yr | | | |
| Potential Operation | 365 | days/yr | Potential Operation | 15.20 days/yr | | | |
| Potential Fuel Usage | 5.19 | Mscf/day | MAX. Gas Flared | 1559.520 Mscf/day | | | |

Flare Pilot Emissions

| Pollutant | Emission Factor lb/MMSCF | Annual gas Usage MMSCF/yr | Hrs of Operation (hrs/yr) | Estimated Emissions (lb/hr) | Estimated Emissions Pilot tpy | Source of Emission Factor |
|---|---|---|---|---|---|---|
| NOx | 100.000 | 1.90 | 8760 | 0.02 | 0.09 | AP-42[2] |
| CO | 84.000 | 1.90 | 8760 | 0.02 | 0.08 | AP-42[2] |
| $PM_{10}$ | 7.600 | 1.90 | 8760 | 0.00 | 0.01 | AP-42[2] |
| VOC | 5.500 | 1.90 | 8760 | 0.00 | 0.01 | AP-42[2] |
| $N_2O$ | 1.000 | 1.90 | 8760 | 0.00 | 0.00 | API |
| $SO_2$ | 0.6 | 1.90 | 8760 | 0.00 | 0.00 | AP-42[2] |
| Hexane | 1.8 | 1.90 | 8760 | 0.00 | 0.00 | AP-42[2] |
| Formaldehyde | 0.1 | 1.90 | 8760 | 0.00 | 0.00 | AP-42[2] |
| $CO_2$ | 120000.000 | 1.90 | 8760 | 25.97 | 113.74 | AP-42[2] |

*Flare Combustion Emissions*

| Pollutant | Emission Factor lb/MMBtu | Usage MMBtu/hr | Hrs of Operation (hrs/yr) | Estimated Emissions lb/hr | Estimated Emissions tpy | Emission Factor Source |
|---|---|---|---|---|---|---|
| NOx | 0.068 | 74.73 | 365 | 5.08 | 0.93 | AP-42[1] |
| CO | 0.310 | 74.73 | 365 | 23.17 | 4.23 | AP-42[1] |
| $PM_{10}$ | 0.007 | 74.73 | 365 | 0.56 | 0.10 | AP-42[2] |
| $SO_2$ | 0.0006 | 74.73 | 365 | 0.04 | 0.01 | AP-42[2] |
| $N_2O$ | 0.001 | 74.73 | 365 | 0.08 | 0.01 | API |
| CO2 | 117.650 | 74.73 | 365 | 8791.63 | 1604.02 | AP-42[1] |

*Sandpiper Diaphragm Pump Emissions*

| Pollutant | Emission Factor lb/MMBtu | Usage MMBtu/hr | Hrs of Operation (hrs/yr) | Estimated Emissions lb/hr | Estimated Emissions tpy | Emission Factor Source |
|---|---|---|---|---|---|---|
| NOx | 0.068 | 1.46 | 365 | 0.10 | 0.02 | AP-42[1] |
| CO | 0.310 | 1.46 | 365 | 0.45 | 0.08 | AP-42[1] |
| $PM_{10}$ | 0.007 | 1.46 | 365 | 0.01 | 0.002 | AP-42[2] |
| $SO_2$ | 0.0006 | 1.46 | 365 | 0.001 | 0.000 | AP-42[2] |
| $N_2O$ | 0.001 | 1.46 | 365 | 0.001 | 0.000 | API |
| CO2 | 117.650 | 1.46 | 365 | 172.24 | 31.42 | AP-42[1] |

*Total Potential Vapor Combustor Emissions*

| Pollutant | tpy | lb/hr |
|---|---|---|
| NOx | 1.04 | 5.20 |
| CO | 4.39 | 23.64 |
| PM10 | 0.11 | 0.00 |
| $SO_2$ | 0.01 | 0.00 |
| VOC | 3.35 | 18.34 |
| HAPs | 0.25 | 1.35 |
| $N_2O$ | 0.02 | 0.08 |
| $CH_4$ | 18.08 | 4.13 |
| $CO_2$ | 1749.18 | 8989.84 |
| $CO_2e$ | 2205.67 | 9116.33 |

[1] EPA AP-42, Volume I, Fifth Edition - April 2015, Table 13.5-1, Emission Factors for Flare Operations.

[2] EPA AP-42, Volume I, Fifth Edition - September 1991, Table 1.4, Emission Factors for Natural Gas Combustion

**Noble Energy, Inc. SHL 22 Production Facility**
**Pneumatic Controllers**

| | | |
|---|---|---|
| Equipment ID | **11S-FC1-8, 11S-BP** | |
| Equipment Usage | Flow Control / Back Pressure | |
| Equipment Make | Fischer Control | |
| Equipment Model | DVC 6200 | |
| Emission Controls | None | |
| Equipment Count | 9 | |
| Design Flow* | 6.00 | SCFH |
| Potential Operation | 8760 | hr/yr |
| Service | NG | |

| | | |
|---|---|---|
| Equipment ID | **11S-LC1-16** | |
| Equipment Usage | Separator Level Control | |
| Equipment Make | KIMRAY | |
| Equipment Model | GEN II level Controllers | |
| Emission Controls | None | |
| Equipment Count | 16 | |
| Design Flow* | 0.02 | SCFH |
| Potential Operation | 8760 | hr/yr |
| Service | NG | |

*Potential Emissions* 11S-FC1-8

| Pollutant | | Emission | Hrs of | Estimated Emissions | | Source of |
|---|---|---|---|---|---|---|
| | % of VOC | Factor (lb/SCF) | Operation (hrs/yr) | (lb/hr) | (tpy) | Emission Factor |
| VOC | | 0.05 | 8760 | 2.46 | 10.76 | Manufacturer Factor |
| n-Hexane | 7.80E-02 | | | 0.19 | 0.84 | Manufacturer Factor |
| Benzene | 1.70E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Toluene | 7.23E-04 | | | 0.00 | 0.01 | Manufacturer Factor |
| Ethylbenzene | 9.26E-05 | | | 0.00 | 0.00 | Manufacturer Factor |
| Xylenes | 6.95E-04 | | | 0.00 | 0.01 | Manufacturer Factor |
| Total HAPs | 7.34E-02 | | 8760 | 0.20 | 0.86 | Manufacturer Factor |
| CH4 | 5.40E+00 | | | 13.25 | 58.04 | Manufacturer Factor |
| $CO_2$ | 1.90E-02 | | | 0.05 | 0.20 | Manufacturer Factor |
| $CO_{2e}$ | | | | 331.30 | 1451.09 | 40CFR98 |

*Potential Emissions* 11S-BP

| Pollutant | | Emission | Hrs of | Estimated Emissions | | Source of |
|---|---|---|---|---|---|---|
| | % of VOC | Factor (lb/SCF) | Operation (hrs/yr) | (lb/hr) | (tpy) | Emission Factor |
| VOC | | 0.05 | 8760 | 0.31 | 1.34 | Manufacturer Factor |
| n-Hexane | 7.80E-02 | | | 0.02 | 0.10 | Manufacturer Factor |
| Benzene | 1.70E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Toluene | 7.23E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Ethylbenzene | 9.26E-05 | | | 0.00 | 0.00 | Manufacturer Factor |
| Xylenes | 6.95E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Total HAPs | 7.34E-02 | | 8760 | 0.02 | 0.11 | Manufacturer Factor |
| CH4 | 5.40E+00 | | | 1.66 | 7.25 | Manufacturer Factor |
| $CO_2$ | 1.90E-02 | | | 0.01 | 0.03 | Manufacturer Factor |
| $CO_{2e}$ | | | | 41.41 | 181.39 | 40CFR98 |

*Potential Emissions* 11S-LC1-16

| Pollutant | | Emission | Hrs of | Estimated Emissions | | Source of |
|---|---|---|---|---|---|---|
| | % of VOC | Factor (lb/SCF) | Operation (hrs/yr) | (lb/hr) | (tpy) | Emission Factor |
| VOC | | 0.05 | 8760 | 0.01 | 0.06 | Manufacturer Factor |
| n-Hexane | 7.80E-02 | | | 0.19 | 0.00 | Manufacturer Factor |
| Benzene | 1.70E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Toluene | 7.23E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Ethylbenzene | 9.26E-05 | | | 0.00 | 0.00 | Manufacturer Factor |
| Xylenes | 6.95E-04 | | | 0.00 | 0.00 | Manufacturer Factor |
| Total HAPs | 7.34E-02 | | 8760 | 0.20 | 0.00 | Manufacturer Factor |
| CH4 | 5.40E+00 | | | 0.07 | 0.32 | Manufacturer Factor |
| $CO_2$ | 1.90E-02 | | | 0.00 | 0.00 | Manufacturer Factor |
| $CO_{2e}$ | | | | 1.84 | 8.06 | 40CFR98 |

## Williams, Jerry

**From:** Williams, Jerry
**Sent:** Wednesday, November 9, 2016 1:26 PM
**To:** Phil Schlagel; 'rj.moses@nblenergy.com'
**Cc:** McKeone, Beverly D
**Subject:** WV DAQ Permit Application Incomplete for Noble Energy, Inc. - SHL 22

**RE: Application Status: Incomplete**
**Noble Energy, Inc. - SHL 22**
**Permit Application No. R13-3345**
**Plant ID No. 051-00230**

Mr. Moses,

Your application for a construction permit for a natural gas production facility was received by this Division on October 14, 2016 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Please provide the manufacturer's data (specification sheet) for the engine (9S-GEN) and the NSCR manufacturer data (specification sheet) for this engine. Is this engine EPA certified? If so, please include the EPA Certificate of Conformity.
2. Please provide the PM10 and SO2 emissions for the vapor combustor (4S-COMB).
3. Please provide the haulroad emissions (PM10, PM2.5).
4. Please provide the VOC, PM10, SO2 and HAP emissions for the flare (6S-FL).
5. Please provide the CO2e emissions for all 11S sources.
6. Please provide the VOC and HAP emissions for the pneumatic level control valves (11S-LC1-16).
7. Please provide the CO2e emissions for the produced water truck loadout (2S-TL1).

Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov

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dep

Please consider the environment before printing this email.

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Suite 116
Canonsburg, PA 15317-9504

Tel: 724-820-3000
Fax: 724-820-3098
www.nobleenergyinc.com

noble energy



October 26, 2016

Mr. Jerry Williams
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

**RE: Noble Energy, Inc.**
**Sand Hill 22 Production Facility**
**Air Permit Application No. R13-3345**
**Marshall County, WV**

Dear Mr. Williams:

Noble Energy, Inc., respectfully submits the enclosed original affidavit for Class 1 legal advertisement. The Moundsville Dailey Echo sent one copy to our Canonsburg office and one to our Houston office, so another original copy will be sent under separate cover.

The application fees were paid by credit card on October 26, 2016, the receipt is also attached. Should you have any questions or require further information on the application package, please do not hesitate to contact me (phil.schlagel@nblenergy.com or (281) 872-3202). We thank you in advance for your efforts in reviewing this submittal.

Sincerely,

Phillip Schlagel
Air Quality Manager
Noble Energy, Inc.

Enclosures:

ID # 051 - 00230
Reg R13-3345
Company NOBLE ENERGY
Facility SAND HILL 22 Initials JW

NON-CONFIDENTIAL

WV DEP
601 57TH ST SE
CHARLESTON, WV 25304

## SALE

MID: 5990 Store: 5430 Term: 7501
REF#: 00000001
Batch #: 203 RRN: 630015214274
10/26/16 11:02:12
AVS: ZIP MATCH CVC: M
Invoice #: 05100230
Trans ID: 306300541328581
APPR CODE: 020526
VISA Manual CNP
**********4984 **/**

**AMOUNT $2,000.00**

APPROVED

I AGREE TO PAY ABOVE TOTAL AMOUNT
IN ACCORDANCE WITH CARD ISSUER'S
AGREEMENT
(MERCHANT AGREEMENT IF CREDIT VOUCHER)
RETAIN THIS COPY FOR STATEMENT
VERIFICATION

MERCHANT COPY

MOUNDSVILLE DAILY ECHO
SINCE 1891

(304) 845-2660
P.O. BOX 369
MOUNDSVILLE
WEST VIRGINIA
26041

AFFIDAVIT OF PUBLICATION

STATE OF WEST VIRGINIA,
COUNTY OF MARSHALL, to wit

I, Melanie S. Murdock being first duly sworn upon my oath, do depose and say:

- that I am Legal Advertising Manager of the MOUNDSVILLE DAILY ECHO, a Republican newspaper;
- that I have been duly authorized to execute this affidavit;
- that such newspaper has been published for over 119 years, Is regularly published afternoons dally except Saturdays and Sundays, for at least fifty weeks during the calendar year, In the municipality of Moundsville, Marshall County, West Virginia.
- that such newspaper is a newspaper of "general circulation" as defined In Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Moundsville and Marshall County;
- that such newspaper averages In length four or more pages, exclusive of any cover, per Issue;
- that such newspaper Is circulated to the general public at a definite price or consideration;
- that such newspaper Is a newspaper to which the general public resorts far passing events of a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Legal Advertisement

PARTY(ies)

Air Quality Pemit / SHL 22

NATURE (and agency if heard before one)

CERTIF-BILL TO

Noble Energy, Inc.
Attn.: Phil Schlagel
1001 Noble Energy Way
Houston, TX 77070

WAS PUBLISHED IN-SAID NEWSPAPER AS FOLLOWS

| Times | Dates |
|---|---|
| 1 | October 13, 2016 |

| BY WORDS | PUBLICATION CHARGES |
|---|---|
| 420 | $48.30 |

Melanie S. Murdock

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
AMY MCGLUMPHY
Moundsville Daily Echo
PO Box 369
Moundsville, WV 26041
My Commission Expires August 29, 2023

Taken, sworn and subscribed before me this 17th day of October 2016

Amy McGlumphy
Notary Public

## LEGAL ADVERTISEMENT

AIR QUALITY PERMIT NOTICE

Notice of Application for Permit Application

Notice is given that Noble Energy, Inc. has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a 45CSR13 Permit for its SHL 22 oil and natural gas production facility located in Marshall County West Virginia at latitude 39.99576622 and longitude -80.56099553. From Interstate 70, take Dallas Pike Road Exit (Exit 11), at bottom of ramp, make a right if traveling east or left if traveling west onto CR 41 (Dallas Pike Road), and travel Dallas Pike Road approximately 4.9 miles to the town of Dallas, make a right onto CR 7 (Stone Church/Sand Hill Road), make a right onto Stone Church/Sand Hill Road and travel approximately 1.8 miles to CR 7 (Wye Intersection) – Sand Hill Road, make a left hand turn onto Sand Hill Road and travel approximately 1.1 miles to CR 9 - Standiford Hill Road, make a right turn onto Standiford Hill Road and travel 0.1 mile to lease road on left.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

Regulated Pollutant--Potential Annual Emissions in tons per year (tpy)
Carbon Monoxide--30.67
Nitrogen Oxides--11.34
Particulate Matter (PM)--0.47
PM-10--0.47
Sulfur Dioxide--0.04
Total Volatile Organic Compounds--26.51
Total Hazardous Air Pollutants--2.44
Total Carbon Dioxide Equivalent--17,363

Startup of the operation is planned to begin on or about February 15, 2017. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this application for 45CSR13 Permit should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this, Thursday, October 06, 2016

By: Noble Energy, Inc.
RJ Moses
Operations Manager
Marcellus Business Unit
1000 Noble Energy Drive
Canonsburg, PA 15317
PUBLISH: October 13, 2016.

## Williams, Jerry

**From:** Ward, Beth A
**Sent:** Wednesday, October 26, 2016 11:21 AM
**To:** Adkins, Sandra K; rj.moses@nblenergy.com; phil.schlagel@nblenergy.com
**Cc:** McKeone, Beverly D; Williams, Jerry
**Subject:** RE: WV DAQ Permit Application Status for Noble Energy, Inc.; Sand Hill 22
**Attachments:** 2016_10_26_11_15_43.pdf

Please see the attached receipt.

Thank You!

OASIS CR 1700045392

**From:** Adkins, Sandra K
**Sent:** Wednesday, October 19, 2016 10:42 AM
**To:** rj.moses@nblenergy.com; phil.schlagel@nblenergy.com
**Cc:** McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>; Williams, Jerry <Jerry.Williams@wv.gov>; Ward, Beth A <Beth.A.Ward@wv.gov>
**Subject:** WV DAQ Permit Application Status for Noble Energy, Inc.; Sand Hill 22

**RE: Application Status**
**Noble Energy, Inc.**
**Sand Hill 22**
**Facility ID No. 051-00230**
**Application No. R13-3345**

ID # 051-00230
Reg R13-3345
Company Noble Energy
Facility Sand Hill 22 Initials JW

RJ Moses,

Your application for a construction permit for the Sand Hill 22 location was received by this Division on October 14, 2016, and was assigned to Jerry Williams. The following items were not included in the initial application submittal:

**Original affidavit for Class I legal advertisement not submitted.**

**Application fee AND/OR additional application fees:**
**$1,000 Construction, Modification, Relocation or Temporary Permit*
**$1,000 NSPS*
(You may contact the Accounts Receivable section at 304 926-0499 ext. 4888 or Beth Ward at ext. 1846 to pay via credit card. DEP accepts Visa and MasterCard only.)

*These items are necessary for the assigned permit writer to continue the 30-day completeness review.*

Within 30 days, you should receive a letter from Jerry stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

NON-CONFIDENTIAL

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Jerry Williams, at 304-926-0499, extension 1223.

WV DEP
601 57TH ST SE
CHARLESTON, WV 25304

## SALE

MID: 5990 Store: 5430 Term: 7501
REF#: 00000001
Batch #: 203 RRN: 630015214274
10/26/16 11:02:12
AVS: ZIP MATCH CVC: M
Invoice #: 05100230
Trans ID: 306300541328581
APPR CODE: 020526
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MERCHANT COPY

**Adkins, Sandra K**

**From:** Adkins, Sandra K
**Sent:** Wednesday, October 19, 2016 10:42 AM
**To:** 'rj.moses@nblenergy.com'; 'phil.schlagel@nblenergy.com'
**Cc:** McKeone, Beverly D; Williams, Jerry; Ward, Beth A
**Subject:** WV DAQ Permit Application Status for Noble Energy, Inc.; Sand Hill 22

**RE: Application Status**
**Noble Energy, Inc.**
**Sand Hill 22**
**Facility ID No. 051-00230**
**Application No. R13-3345**

RJ Moses,

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**Application fee AND/OR additional application fees:**
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Should you have any questions, please contact the assigned engineer, Jerry Williams, at 304-926-0499, extension 1223.

NON-CONFIDENTIAL

051-00230 New ID# Construction
R13-3345 New R13# Jeny

## 45CSR13 Administrative Update, Construction, Modification, Relocation, Temporary Permit or General Permit Registration Incomplete Application

A complete application is demonstrated when all of the information required below is properly prepared, completed and attached. The items listed below are required information which must be submitted with a 45CSR13 permit application. Any submittal will be considered incomplete if the required information is not included. The applicant must submit a complete application in order to receive a 45CSR13 permit.

☒ Class I legal advertisement not published in a newspaper certified to accept legal advertisements and original affidavit submitted.

☒ Application fee AND/OR additional application fees not included:

- ☐ $250 Class I General Permit
- ☐ $300 Class II Administrative Update
- ☒ $1,000 Construction, Modification, Relocation or Temporary Permit
- ☐ $500 Class II General Permit
- ☒ $1,000 NSPS
- ☐ $2,500 NESHAP
- ☐ $2,500 45CSR27 Pollutant
- ☐ $5,000 Major Modification
- ☐ $10,000 Major Construction

☐ Original and two (2) copies of the application not submitted.

☐ File organization – application pages are not numbered or in correct order, application is not bound in some way, etc.

☐ Confidential Business Information is not properly identified.

☐ General application forms not completed and signed by a responsible official.

☐ Authority of Corporation form not included – required if application is signed by someone other than a responsible official.

☐ Applicant is not registered with the West Virginia Secretary of State's Office.

☐ Copy of current Business Registration Certificate not included.

☐ Process description, including equipment and emission point identification numbers, not submitted.

☐ Process flow diagram, including equipment and emission point identification numbers, not submitted.

☐ Plot plan, including equipment and emission point identification numbers, not submitted.

☐ Applicable technical forms not completed and submitted:

- ☐ Emission Point Data Summary Sheets
- ☐ Air Pollution Control Device Sheets
- ☐ Emission Unit Data Sheets
- ☐ Equipment List Form

☐ Emission calculations not included – emission factors, references, source identification numbers, etc.

☐ Electronic submittal diskette not included.